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10/662,428	09/16/2003	Randall E. Aull	003797.00621	2075

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EXAMINER	
PHAM, TAMMY T	

ART UNIT	PAPER NUMBER
2629	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/662,428	AULL ET AL.	
	Examiner	Art Unit	
	Tammy Pham	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-44* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-44* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 5, 6, 8-12, 14, 23, 27-28, 30-34, 36, are rejected under 35 U.S.C. 102(b) as being anticipated by Barker et al. (US Patent No: 5,675,329).

As for claims 1 and 23, Barker teaches of a method of processing data (Fig. 2) received from a keyboard (11) having a plurality of keys (11), the plurality of keys (11) including multiple keys (11) having respective characters assigned thereto, the plurality of keys (11) further including one or more force-sensing keys (12), the method comprising {claim 1} and of a computer-readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform steps comprising {claim 23}:

receiving keyboard data sets reporting (110, 120, 130, 140), for keys of the plurality pressed by a keyboard user, key force data and key identification data in column 3, lines 54-61;

determining whether key force data in a keyboard data set updates key force data corresponding to a previously-reported key press for a key continuing to be pressed (150) in column 3, lines 64-67.

generating first type keyboard data messages containing force updates based on updated key force data, key identifiers for the keys associated with the updated key force data, and force update indicators (160) in column 4, lines 1-5; and

generating second type keyboard data messages identifying initially pressed keys and forces applied to the initially pressed keys (170) in column 4, lines 6-11.

As for claims 5 and 27, Barker teaches that the receiving keyboard data sets comprises receiving a data set having key identification data and key force data for multiple keys, and further comprising:

parsing the key identification data in the keyboard data set into an ordered list of key identifiers;

parsing the key force data in the keyboard data set into an ordered list of key force values; and

associating key identifiers and force values based on the orders in which the key identification data and the key force data appear in the data set in Fig. 2 and in column 3, lines 50-20. One can see that the key data are read into the apparatus in a certain order and identified in a certain order.

As for claims 6, 8, 28, 30, Barker teaches of automatically generating, at a repeat rate based on key force data for a key held pressed by a user, a third type keyboard data message (180) indicating the held key has been pressed {claims 6, 28} and that the method of claim 6, wherein the automatically generating a third type keyboard data message comprises mapping a

repeat rate to the key force data for the held key {claims 8, 30} in Fig. 2 and in column 4, lines 112-22. One can see from the figure that the diagram cycles through, hence has a repeated rate.

As for claim 9, 31, Barker teaches

storing cumulative key force data; and

based on the stored cumulative key force data, mapping a repeat rate to the force data for the held key in Fig. 2. By comparing various key force data, one can see that the apparatus is able to store the cumulative key force data. Also the process shown in Fig. 2 cycles around and hence and a repeated rate.

As for claims 10, 32, Barker teaches that the mapping is based on a transfer function in which a range of force data values is subdivided into multiple sub-ranges, and wherein each of the sub-ranges is assigned a repeat rate in column 3, lines 1-20. The force data has different ranges and values and each pertains to a certain tasks.

As for claims 11, 33, Barker teaches that the transfer function comprises an initial group of sub-ranges mapped to gradually increasing repeat rate values followed by a group of sub-ranges mapped to a sharply increasing repeat rate values in column 3, lines 1-20. The force that the user exerts in pressing the buttons gradually increases in order to reach the second function of that particular button.

As for claims 12, 34, Barker teaches of that the automatically generating a third type keyboard message (180) comprises:

determining if a repeat invoke delay has elapsed since the user initially pressed the held key; and

commencing the automatic generation after the repeat invoke delay has elapsed in Fig. 2 and in column 4, lines 11-25. The third type keyboard message occurs when the cycle has completed its repeating cycle.

As for claim 14, Barker teaches of a method of processing data received from a keyboard having a plurality of keys, the plurality of keys including multiple keys having respective characters assigned thereto, the plurality of keys further including one or more force-sensing keys, the method comprising:

receiving a keyboard data set reporting, for multiple keys of the plurality pressed by a keyboard user, key force data and key identification data;

parsing the key identification data into an ordered list of key identifiers;

parsing the key force data into an ordered list of key force values; and

associating key identifiers and force values based on the orders in which the key identification data and the key force data appear in the keyboard data set Fig. 2 and in column 3, lines 50-20. One can see that the key data are read into the apparatus in a certain order and identified in a certain order.

As for claims 21, Barker teaches of:

storing the identifier for the last key identified as pressed;

storing the most recently received force value for the last key identified as pressed;

receiving a keyboard data message lacking a force value and indicating that the last key identified as pressed remains pressed; and

generating a keyboard input message identifying the last key identified as pressed and containing the stored force value in column 3, lines 50-20.

As for claims 22, Barker teaches of:

receiving a simulated keyboard data message containing simulated key press data, the simulated key press data identifying an unpressed key and containing simulated key force data for the unpressed key; and

generating a third keyboard input message identifying the unpressed key, indicating a simulated key press, and containing the simulated key force value in Fig. 2 and in column 3, lines 50-20.

As for claim 36, Barker teaches of a computer-readable medium having stored thereon data representing sequences of instructions which, when executed by a processor, cause the processor to perform steps comprising:

receiving a keyboard data set from a keyboard having a plurality of keys, the plurality of keys including multiple keys having respective characters assigned thereto, the plurality of keys further including one or more force-sensing keys, wherein the keyboard data sets report, for

multiple keys of the plurality pressed by a keyboard user, key force data and key identification data;

parsing the key identification data into an ordered list of key identifiers;

parsing the key force data into an ordered list of key force values; and

associating key identifiers and force values based on the orders in which the key identification data and the key force data appear in the keyboard data set in Fig. 2 and in column 3, lines 50-20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 2-4, 7, 13, 15-16, 17-22, 24-26, 29, 35, 37-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barker et al. (US Patent No: 5,675,329).

As for claims 2, 7, 24, 29 Barker teaches of a first (160) and second (170) type keyboard data messages in column 4, lines 1-12.

Barker fails to teach that the first, second and third type keyboard data messages having a common data structure.

It would have been obvious to have the first, second and third type keyboard data messages have a common data structure in order to save money and time by having a consistent way to implement a similar aspect of the same apparatus.

It would have been obvious to one with ordinary skill in the art at the time the invention was made to have the first, second and third type keyboard data messages have a common data structure in order to save money and time by having a consistent way to implement a similar aspect of the same apparatus.

As for claims 3-4, 15-16, 25-26, 37-38 Barker teaches of the method of claim 1 with reported key force data

Barker fails to teach that in determining if reported key force data contains a null indicator; and associating a null indicator with a non-force-sensing key {claim 3, 15, 25, 37} or that wherein a null indicator is a zero value for key force data {claim 4, 16, 26, 38}.

It would have been obvious to have a way to determine if no key was pressed, or more specifically, if in that determining if reported key force data contains a null indicator; and associating a null indicator with a non-force-sensing key {claim 3} or that wherein a null indicator is a zero value for key force data {claim 4} so that the apparatus can detect whether or not a key is in use.

It would have been obvious to one with ordinary skill in the art at the time the invention was made to include that in that determining if reported key force data contains a null indicator; and associating a null indicator with a non-force-sensing key {claim 3} or that wherein a null indicator is a zero value for key force data {claim 4} so that the apparatus can detect whether or

not a key is in use to better monitor the keyboard pressure/force (see Barker, column 2, lines 35-36).

As for claims 13, 35, Barker teaches of the method of claim 6, further comprising:

determining if the key force data for another held key contains a null indicator; and

upon determining that the key force data for the other held key contains a null indicator, automatically generating, at a preset rate and after a preset delay, repeating keyboard data messages indicating the other held key has been pressed in Fig. 2. It has been discussed to great extent above that although Barker does not teach an actual null indicator in the case where there is no force exerted on the button, it would have been obvious to include this feature. The rest of the claim limitations are taught in Fig. 2 and in column 3, lines 50-20 as one can see that this process is repeated through.

As for claims 17, 39 Barker teaches of the method for processing data received from a keyboard having a plurality of keys, the plurality of keys including multiple keys having respective characters assigned thereto, the plurality of keys further including one or more force-sensing keys, the method comprising:

receiving keyboard data messages identifying keys that have been pressed by a user and containing force values for forces applied to the pressed keys;

generating a first keyboard input message identifying a first pressed key and containing the force value for the first pressed key;

generating a second keyboard input message identifying a second pressed key and containing the force value for the second pressed key and a force update indicator in column 4, lines 1-25.

Barker fails to teach of receiving a registration from a first application program requesting keyboard input data and key force data; receiving a registration from a second application program requesting keyboard input data.

However, in Fig. 2 and in column 3, lines 50-20; Barker teaches of the process that has various prompts to take in keyboard data because this has a similar function to the applications as in the claim limitations, the prompts can be seen and viewed as separate applications.

It would have been obvious to one with ordinary skill in the art at the time the invention was made to include application software with the apparatus in order to associate a different task or data with a different application.

As for claim 21, Barker teaches of:

storing the identifier for the last key identified as pressed;

storing the most recently received force value for the last key identified as pressed;

receiving a keyboard data message lacking a force value and indicating that the last key identified as pressed remains pressed; and

generating a keyboard input message identifying the last key identified as pressed and containing the stored force value in column 3, lines 50-20.

As for claim 22, Barker teaches of:

receiving a simulated keyboard data message containing simulated key press data, the simulated key press data identifying an unpressed key and containing simulated key force data for the unpressed key; and

generating a third keyboard input message identifying the unpressed key, indicating a simulated key press, and containing the simulated key force value in Fig. 2 and in column 3, lines 50-20.

As for claims 18, 40, Barker fails to teach of using various application, specifically providing the first keyboard input message to the first and second applications.

In Fig. 2, Barker shows that there are various prompts that takes in various keyboard data. It would have been obvious to provide keyboard input message to first and second applications at these promptings in order to associate a different task or data with a different application.

It would have been obvious to one with ordinary skill in the art at the time the invention was made to provide keyboard input message to first and second applications at these promptings in order to associate a different task or data with a different application.

As for claims 19, 41, only providing the second keyboard input message to applications requesting key force data in Fig. 2 and in column 3,lines 50-20.

As for claims 20, 42, Barker teaches wherein the second keyboard input message is provided to the first application,

generating a third keyboard input message identifying a third pressed key and containing the force value for the third pressed key and a force update indicator; and

providing the third keyboard input message to the first application prior to providing a message indicating that the second pressed key is no longer being pressed in Fig. 2 and in column 3,lines 50-20.

As for claims 43, Barker teaches of:

storing the identifier for the last key identified as pressed;

storing the most recently received force value for the last key identified as pressed;

receiving a keyboard data message lacking a force value and indicating that the last key identified as pressed remains pressed; and

generating a keyboard input message identifying the last key identified as pressed and containing the stored force value in column 3, lines 50-20.

As for claims 44, Barker teaches of:

receiving a simulated keyboard data message containing simulated key press data, the simulated key press data identifying an unpressed key and containing simulated key force data for the unpressed key; and

generating a third keyboard input message identifying the unpressed key, indicating a simulated key press, and containing the simulated key force value in Fig. 2 and in column 3, lines 50-20.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tammy Pham whose telephone number is (571) 272-7773. The examiner can normally be reached on 8:00-5:30 (Mon-Fri).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tammy Pham
March 9, 2006

SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER